

ZOOLOGICAL SOCIETY.

May 24, 1864.—Prof. Huxley, F.R.S., V.P., in the Chair.

ON UROCYCLUS, A NEW GENUS OF TERRESTRIAL GASTEROPODOUS MOLLUSCA FROM AFRICA. BY DR. J. E. GRAY, F.R.S., ETC.

Dr. John Kirk has kindly sent to the British Museum, with some other Mollusca in spirits, a specimen of a Slug from the Zambesi.

Naked Terrestrial Mollusca seem rare in that country, for Dr. Kirk says it is the only species of Slug that he observed during his journey: he thinks that the country is probably too dry for them. It was found on some floating weed near the mouth of the river Zambesi. It was not uncommon. This Slug forms a new genus, which may be thus named and described:—

UROCYCLUS.

Body elongate, attached its whole length to the upper surface of the foot. Mantle shield-like, uniformly granular; a small and round deep pit in the middle of the hinder margin. Shell —? Subcaudal gland very large, deep, circular, surrounded by a broad transversely grooved edge. The respiratory aperture on the middle of the right side of the mantle; orifice of generation at the base of the right tentacles. Tentacles four, retractile; lower small.

This genus is exactly like a *Limax* or an *Arion* in external form; but is immediately to be distinguished from either of them by the large size of the deep glandular pit, which is situated on the upper surface of the tip of the tail, and is surrounded by a broad, smooth, raised edge, marked with numerous transverse grooves.

The genus *Milax* is said to have two small pores near the hinder edge of the mantle, which may be analogous to the single pores in the mantle of this genus. The genus *Milax* is certainly destitute of any subcaudal gland or pore, and is referred to the family Limacidae; while the genus here described is peculiar for the large size and general development of the subcaudal pore.

In the pores on the hinder edge of the mantle it may be allied to the *Limax noctilucus* of D'Orbigny and the *Phosphorax noctilucus* of Webb and Berthelot, of Teneriffe; but this animal is so very imperfectly described and badly figured that it is not easy to understand it. Férussac, in the 'Bulletin d. Sci. Nat.' 1821, x. 300, in which it is first noticed under the name of *Limax noctilucus*, only observes, "it is furnished with an aperture in the mantle similar to that in *Arion extraneus*, from which escapes a phosphorescent matter." Now *Arion extraneus* is evidently a *Drusia*; and the hole in the mantle is the space left between the reflexed edges of that organ, exhibiting part of the shell. The figure given by D'Orbigny, in Férussac's 'Mollusca,' p. 76, t. 2. f. 8, exhibits the body contracted, and the hinder part produced into a marginal disk, which is said to be lucid green and phosphorescent in the dark. The tail is described as rounded, and no mention is made of any subcaudal gland of any kind; so that it can scarcely be the genus here described; for the large,

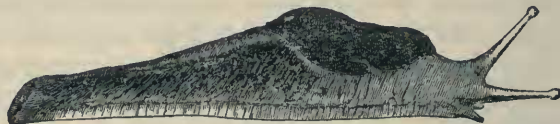
deep subcaudal circular pit, with its large, thick, prominent rim, could not have been overlooked on the most casual examination.

I have not considered it right to cut into the single specimen which we possess of this interesting genus, either to examine the consistence or form of the shell, or to describe the form, structure, and disposition of the teeth—all most important particulars, which I hope the receipt of other specimens will enable me before long to supply.

The pore near the hinder margin of the shield is deep and lined with membrane, which is swollen up and bladder-like at the base in the specimen in spirits, not showing any indication of a shell; and therefore it cannot be (as has been suggested by one zoologist, to whom I had showed the specimen) compared to the open space which is left on the upper surface of the shell by the edge of the mantle being only partially reflected over its outer surface, as in the genera *Drusia*, *Girasia*, *Mærialla*, and *Parmacellus* in the Arionidæ, and *Peltella* in the Limacidæ. It is probably more properly to be compared with the luminous gland which is said to be found, but so imperfectly and differently described as existing in the genus *Phosphorax*.

The mantle is rather produced and free in front and on the front part of the sides, but does not appear to be so free as in the European species of the genus *Limax*.

#### UROCYCLUS KIRKII.



Pale brown, with minute square black spots on the sides, with a black streak on each side of the back; middle of the back with two darker brown streaks. The sides of the body with diverging sunken lines. The margin of the foot with a series of small black specks.

*Hab.* Central Africa.

June 28, 1864.—Dr. J. E. Gray, F.R.S., in the Chair.

#### ON A NEW GENUS OF PEDICULATE FISH FROM THE SEA OF MADEIRA. BY DR. ALBERT GÜNTHER, F.Z.S.

Mr. J. Y. Johnson discovered during his last sojourn in Madeira, on the 24th December 1863, a fish which proves to be the type of a new genus, not only on account of its extraordinary form, but also on account of the absence of ventral fins. In the latter respect it agrees with *Ceratias* from the coast of Greenland, from which, however, it differs in its dentition.

It must be extremely rare, as the specimen entrusted to me by Mr. Johnson for description, and presented by him to the British Museum, is the only one which has ever come to the knowledge of naturalists. Neither the Rev. R. T. Lowe nor Mr. Johnson had heard of its existence, nor did the fishermen recognize it. It is evidently a deep-sea fish, inhabiting the same horizontal marine zone

as *Saccopharynx* and *Alepidosaurus*. When brought to Mr. Johnson, the belly was much distended, and contained, rolled up spirally into a ball, a Scopeline fish, which measured  $7\frac{1}{2}$  inches in length, and 1 inch in depth. Nevertheless it was tempted to take a bait.

#### MELANOCETUS.

Head and body compressed, head very large, body small, abdominal cavity forming a sac suspended from the trunk. Cleft of the mouth exceedingly wide, vertical. Teeth of the jaws and palate long, pointed, unequal in size. Skin smooth. The spinous dorsal is reduced to a single filament placed on the head. The soft dorsal and anal short. Ventrals none. Slit of the gill-openings of moderate width, below the pectoral.

#### MELANOCETUS JOHNSONII.

D. 1|14. C. 8. A. 4. P. 18.

This singular fish is distinguished by a greater disproportion of the various parts of its body than is found in the other genera of the family to which it belongs. The head is of a tetrahedral form, and is the most extensive part of the whole animal. The gape is enormous; and although the lower jaw is vertical when the mouth is closed, it can be moved downwards at more than a right angle. The lateral extensibility of the mouth is not less than the vertical; so that the prey which can be received within the cavity of the mouth actually may exceed the size of the fish itself. This enormous head is followed by a very small trunk and tail, the length of both being less than the depth of the head. As the trunk would not offer sufficient room for an abdominal cavity corresponding in size to the prey swallowed, this cavity is suspended as a large sac from the lower part of the body, and floats in the water. The upper and lower jaws are armed with a series of teeth which are very unequal in length, some being very long, others small; all are very slender, and can be depressed towards the inside of the mouth: this peculiarity of the teeth may be observed in the *Lophius*, in the Pike, and numerous other rapacious fish with long slender teeth. The vomer is armed with a transverse series of single teeth, and extends across the whole width of the roof of the mouth; the palatine and pterygoid teeth are situated at some distance behind the vomer, and form two bundles irregular in form. The pharynx and œsophagus are, as might be expected, very wide. The eye is situated high up on the side of the head; it is very small, and covered by, but appearing through, the skin. There are no nasal openings. The opercular pieces are reduced to styliiform rudiments; there are five branchiostegals. Only the three inner branchial arches bear short branchial lamellæ, which are disposed in a double series on the two middle ones, and in a single one on the innermost arch. The gill-opening itself is a slit of moderate width, below and behind the pectoral fin. The upper surface of the head is concave, and in the middle of its anterior portion there is situated the single filament to which the anterior dorsal

fin is reduced; this filament is more than half as high as the head, and dilated into a small lamella at its extremity. The second dorsal fin occupies the back of the tail, and is composed of fourteen simple rays, none of which are as high as the fin is long. The caudal fin is quite free from the dorsal and anal, and composed of eight very soft rays, which are bifid at the end, and form a convex posterior margin. Anal fin very short, composed of four rays only, which are opposed to the posterior dorsal rays. The base of the pectoral fin is fleshy and enveloped in skin, as in other *Pediculati*. It is composed of eighteen simple and feeble rays. Ventral fins none. Vent situated immediately behind the abdominal sac. The whole fish, even the inside of the mouth, of the abdominal sac, and of the stomach, is of a uniform deep black.

Total length (mouth closed)  $3\frac{8}{10}$  inches; length of intermaxillary and of mandible  $1\frac{4}{10}$  inch.

Nov. 8, 1864.—Prof. Huxley, F.R.S., V.P., in the Chair.

NOTE ON THE CLAWED TOADS (*DACTYLETHRA*) OF AFRICA.

BY DR. J. E. GRAY, F.R.S., ETC.

There has long been known a Toad that has long slender fingers to its fore feet, like the *Pipæ*, and very large webbed hinder feet, some of the toes of which are armed with very distinct horny black claws—a peculiarity of structure that is quite an exception amongst the Batrachian animals.

The specimen first observed was brought from South Africa: it was described and figured by Cuvier, in the second edition of the 'Règne Animal' (vol. ii. p. 107, t. 7. f. 3), under the name of *Dactylethra*. This author states that the animal had been before partially known; for it is figured, but without its claws, in the 'Planches Enluminées' as the male *Pipa*, I suppose on account of the form of the feet. Daudin described it under the name of the *Crapaud lisse* (t. 30. f. 1); and Merrem, in his Compilations, calls it *Pipa bufonia*. It is now generally known as the *Dactylethra capensis* of Cuvier.

Dr. Peters, when examining a specimen of this animal which he obtained from Mozambique, discovered a very small cylindrical appendage, or beard, situated on the front part of the underside of the orbit; and described it as a new species, under the name of *Dactylethra Mülleri*, in the 'Monatsber. der Berlin. Acad.' (1844, p. 37).

Dr. Hallowell, having observed the same beard under the eyes of a young specimen which he had obtained from the Gaboon through Dr. H. A. Ford, gives a long description of it, under the name of *Dactylethra Mülleri*, in the 'Proceedings of the Academy of Natural Sciences' for 1857, p. 65.

Dr. Günther, in his excellent 'Catalogue of Batrachia Salientia in the British Museum,' published in 1858, admits the two species, and appears not to have observed the minute beard under the eyes in the specimens from South and West Africa, then in the Museum collection; but when we received, in 1862, the specimen

from Natal collected by Mr. Ayres, he named it the *D. Mülleri* of Peters.

Professor Auguste Duméril, in his paper on African Reptiles, published in the 'Archives du Muséum,' vol. x. (1861), makes some observations on the distinction of the two species, and figures the head of *D. capensis* and the entire animal of *D. Mülleri*, showing the little beard under the eyes in the latter figure and not in the former. He also makes the head of *D. capensis* more produced and narrowed in front than in his figure of *D. Mülleri*; but I cannot see any such difference between the heads of the Cape and Western African specimens in the Museum collection.

I may observe that if these naturalists had examined specimens from South Africa, either near the Cape or even so far north as Natal, they would have found the same beard in the true *Dactylethra capensis*, showing that this beard, at least, is a character of the genus, and not a peculiarity of the Mozambique or West African specimens.

In several of the specimens the beard under the eyes, at least when it is preserved in spirits, varies in size on the two sides of the animal; and in one specimen it is scarcely visible on one side, and well developed on the other.

Dr. Peters also gives as a character of his *D. Mülleri*, that it has a spur at the base of the first toe; and Dr. Hallowell observes that the specimen he had from Gaboon "differs from the *Dactylethra* of the Cape, more especially in the presence of a sharp-pointed spur projecting from the cuneiform bone, which is not observed in *Dactylethra capensis*."

Dr. Günther, in his 'Catalogue' (p. 2), also uses this spur as part of the specific character. He says—

*D. levis*. "Tarsus and metatarsus without any tubercle or spur."

*D. Mülleri*. "A spur at the base of the first toe."

Professor Auguste Duméril, in the paper before referred to, figures the feet of *D. capensis* (t. 18. f. 6, 6a) for the purpose of comparing them with the feet of the other figure (of *D. Mülleri*), and observes, "On peut saisir ainsi des dissemblances fort évidentes des deux espèces" (p. 232), showing the spur very distinct in the latter, and not visible in the former—in fact, making the figure agree with the characters assigned, as in the case of the beard under the eyes, rather than as they are in nature.

On examining the specimens from the Cape of Good Hope (collected by Sir Andrew Smith and Mr. Hunter), from West Africa (collected by Mr. Fraser and Mr. Welwitsch), and from Natal (collected by the Rev. H. Callaway and Mr. T. Ayres), I find they all have exactly the same kind of spur, which is least distinctly marked in the latter specimen, from Natal, called *D. Mülleri* by Dr. Günther; but the distinctness of the spur appears to depend on the whole foot being larger and more plump, and it is more distinctly developed or prominent in the smaller than in the larger specimens.

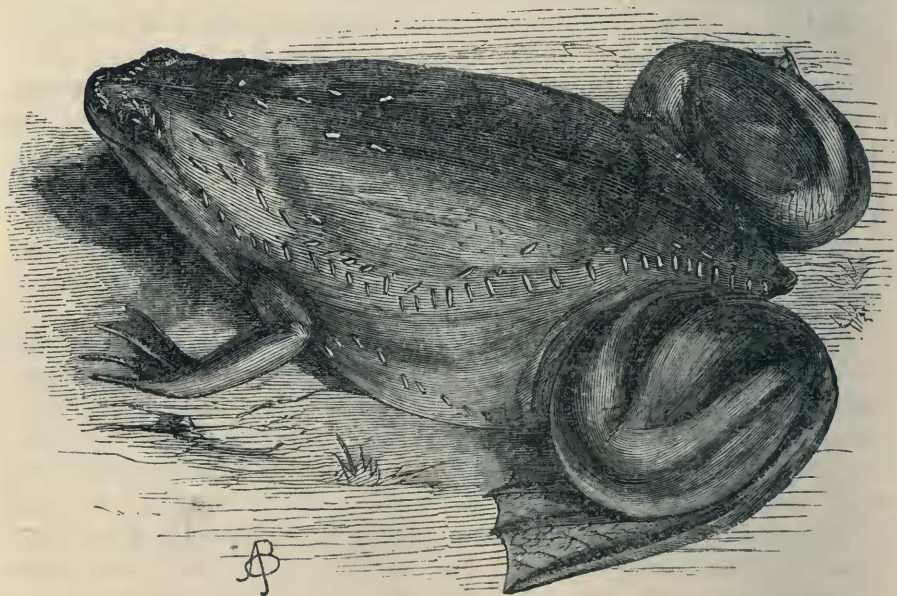
The black horny claws which cover the last joint of the three outer toes and the spur of the hind foot are deciduous in spirits.

Hence the spur may have been overlooked in specimens which have been long in spirits; and the distinctness of the spur greatly depends on the presence or absence of this claw. These black claws are to be seen on the youngest specimens as soon as the toes are developed.

The skin is scattered with small white lines dispersed in a symmetrical manner, which, when examined by a magnifier of rather high power, display linear series of close minute perforations or glandular openings. Dr. Hallowell seems to have observed some of these; for he mentions “the semilunar rows of longitudinal glands on the throat;” but he does not seem to have seen that they are symmetrically distributed over nearly the whole of the body, and especially on the head, the back, and the sides, as well as the throat. He specially observes that the skin is smooth, and that there is no lateral line visible.

Professor Auguste Duméril does not take any notice of them in his short observations; but in his figure of *D. Mülleri* (t. 18. f. 3) he represents the double series of them that surrounds the back like a double series of short prominences or tubercles, very unlike the sunken line of pores which they are—indeed so unlike that I should not have understood what they were intended to represent on this smooth-skinned Toad, had I not previously observed the glands, and if they were not placed exactly where the double line of pores is situated, and where there are no such prominences on the animal as his figure seems to represent.

I will now proceed to notice the distribution of the more important of these white glandular lines. There are two horizontal lines, slightly separated in the middle, at the end of the nose, under the



nostril; a line between the eye and the nostril; and a series of oblique lines across the swollen band which surrounds the eye on the

edge of the orbit; two rows of glands on the back of the neck, placed rather obliquely to each other, and some scattered ones on the outer side of them; two series of short lines from the middle of the temples, continued over the shoulder, along the sides, over the base of the thigh, to the upper surface of the vent; the upper line in these series is longitudinal, and the lower ones larger and transverse to the direction of the upper line. On the under parts there is a lunate series of arched linear glands across the throat and on each side of the body, commencing by an arched line round the back of the axilla, continued in a curved line, with the convex side of the curve downwards, along the side of the belly, and thence to the groin.

The disposition of these glands will appear to be of some importance in a zoological point of view when one studies the character of the genus *Silurana*. These glands, especially those on the underside of the body, are much more distinct in some specimens than they are in others; but I suspect this depends on the season when the specimen has been captured, and especially on the state and manner in which the specimen has been preserved.

The specimens in spirit rather vary in colour; but this may depend on the length of time that they have been in spirit, on the exposure to which they have been submitted, and on the strength of the spirit in which they were originally preserved.

The specimens of an adult male and female from West Africa, presented by Mr. Welwitsch, are of a uniform olive-brown above and yellowish below, marbled with very distinct, unequal-sized, subsymmetrically distributed olive spots.

The specimen from the Cape, presented by Sir Andrew Smith, which is in a rather soft state, is olive obscurely spotted above, pale whitish grey beneath, obscurely marked with small darker spots.

The adult specimen from Natal, collected by Mr. Ayres, and the smaller specimen from West Africa are of a uniform olive-brown above and pale grey-brown beneath, without any indication of spots.

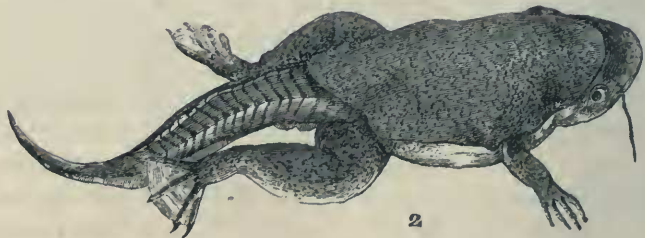
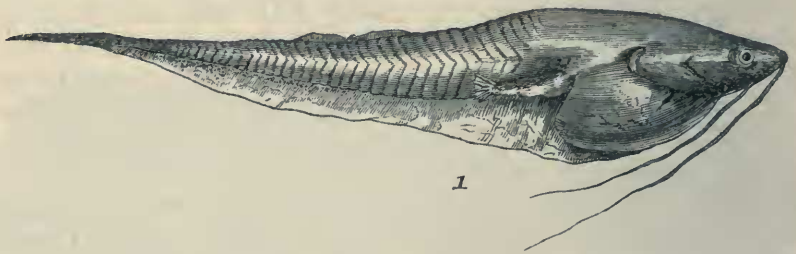
Mr. R. B. N. Walker (to whom we are indebted for the best account of the habits of the Gorilla, and who has brought to England some most interesting animals from Western Africa) has lately been living at Lagos, where he observed some Tadpoles that were developed in abundance in a pond adjoining his residence. He put some of these in spirits, and gave them to the Free Museum at Liverpool. Mr. Moore having kindly sent me some of these specimens for examination, I was soon convinced that they had not before been observed, and therefore sent a short notice of them to the 'Annals and Magazine of Natural History' for September 1864, and named them, from their resemblance to the genus *Silurus*, *Silurana tropicalis*.

Some naturalists having expressed a doubt if the animals sent home by Mr. Walker were not the young of the common *Dactylethra* (an opinion that I entertained myself when I first saw them, and until I had compared them with the papers on the subject), I have been induced to reconsider the question, and to study the genus. This study has led me to the conclusion that the two geographic species of *Dactylethra* are but one, which is spread over the whole of South

and Western Africa; and also to retain the opinion that I have published, that the specimens brought by Mr. Walker from Lagos are probably of a distinct form. I will not take on myself to deny the possibility of their being the larva of *Dactylethra*, as the larva of that genus and the adult form of *Silurana* are unknown; but even if it is proved hereafter that they are only the larva of *Dactylethra*, I think that it is better for the present to keep them separate, until the change from one state to the other has been observed and recorded; at all events, the description and observation of the larva is an important addition to the history of the genus.

It would be a remarkable change, if the large beard that is placed at the angle of the mouth in one genus should turn into the minute beard on the lower edge of the orbit, far above and in front of the angle of the mouth, in the other; yet I am assured by an experienced herpetologist that he believes this change does take place, and that it is only consistent with what is to be observed in the transformation of other Batrachians. No such changes have occurred to me. There is no doubt that the beard at the angle of the mouth is much longer and more slender in the young larva than it is in the oldest specimen we yet possess of the genus *Silurana*. But while the beard diminishes in length, it increases considerably in thickness, showing no inclination to disappear, and does not at all alter its place in any of the specimens I have observed either in the British Museum or at Liverpool.

The least-developed fish-formed specimen (fig. 1) is about  $2\frac{1}{2}$  inches long, and has only the hinder pair of legs developed. The legs are



short and weak; and the toes are short and of nearly equal length, but with the three black claws well developed. The head is depressed, very broad, and flat above, and shelving to near the back



behind. The mouth is small, with a very long slender beard on the upper lip, at the angle of the mouth. The eye is on the keel on the side of the head, considerably behind the beard, placed so as to be visible from the upper and lower surface. The body is swollen; the tail compressed; the inferior fin commences in the middle of the belly, and is extended to the end of the tail.

There is a second fish-formed specimen, not more than 2 inches long and much more slender, which also has the front limbs developed, from the upper part of the sides; these limbs are weak, and the toes are short and equal. The hinder limbs are rather more developed, their toes rather more unequal; and the fin on the under part of the body and tail is also broad and more membranaceous. The mouth, beard, and eyes are exactly as in the former specimen.

The other two specimens (fig. 2) have assumed the form of the genus *Dactylethra*, having both the fore and hind limbs well developed, the eye on the side of the head only visible from the upper surface; but they have a well-developed tail attached to their bodies, with a very narrow, thin inferior membrane. The nose is blunt, rounded at the sides. The mouth small, the beard well developed at the angles. The eyes are far behind the angle of the mouth, and without any appearance of a small beard on the under part of the orbits. These specimens have a very distinct spur, covered with a black claw, at the inner side of the base of the hind foot.

I am willing to admit that there are some facts which might induce one to believe that these animals may prove to be the larva of *Dactylethra*; and, as truth is my only object, I think it right to state them, though they may only be similarities that are common to two genera of the same family.

1. There is a small, white, round, prominent dot on the side of the nose in front, nearly on a level with the lower part of the orbit, which appears as if it might develope itself into the orbital beard of *Dactylethra*; and I think this much more likely to be the case, than that the beard of the angle of the mouth should become the suborbital beard.

2. There are the same double rows of glands which I have described as found in *Dactylethra*; but in these young animals they have a very peculiar appearance. On the forehead, rather in front of the eyes, there is a transverse groove, which is continued over the eyes, the base of the fore legs, along the side to the groin, and then bends up again, and becomes united to a similar groove on the upper surface of the body, which circumscribes an oval well-marked disk or shield that covers the back. The two rows of glands above described are placed on the margin of this shield. The glands are visible in the adult *Dactylethra*, but the disk is not distinguishable. The disk is not distinguishable, except as a slight thickness on the back of the base of the tail, in the two fish-shaped larvæ. This shield is peculiar; it would almost seem to show that there is a certain affinity, or analogy, between the Toads and the Chelonians, or rather the freshwater Emydians.

## DACTYLETHRIDÆ.

Head depressed ; upper jaw toothed ; tongue none ; eyes with an inferior lid ; orbits swollen, marked with transverse oblique white lines of minute pores. The Eustachian tubes united into one pharyngeal orifice. Skin smooth. Head and body with white lines of minute pores, symmetrically disposed. The back with a more or less distinct dorsal shield, commencing on the temples, and continued to the upper part of the base of the tail, marked by two series of short white lines of minute pores (the outer transverse and the inner longitudinal), and a more or less raised edge. The fore feet with four subequal tapering free toes. The hind feet with five elongated, rather unequal toes broadly webbed to the tips, the three outer toes and the spur on the outer side of the ankle furnished with black conical horny claws.

## 1. DACTYLETHRA.

The dorsal shield indistinct, only marked by the double series of glands. Mouth large, not bearded. Orbit with a small beard on the under edge.

*D. CAPENSIS*, Cuvier. *D. lævis*, Günther. *D. Mülleri*, Peters, Hallowell, Duméril.

*Hab.* South and South-eastern Africa.

## 2. SILURANA.

The dorsal shield very distinct, with a raised edge, and separated by a groove on the forehead. Mouth small, with an elongated beard on each side at the angle of the gape. Orbit without any beard. The larva fish-like ; head flat, broad, truncated ; mouth small, two-bearded ; eyes in the keel of the side, shown above and below ; body swollen ; tail elongate, compressed ; the belly and underside of the tail with a broad, membranaceous fin continued to the end of the tail.

*S. TROPICALIS*, Gray, Ann. & Mag. N. H. ser. 3, vol. xiv. p. 316.

*Hab.* Lagos (*R. B. N. Walker, Esq.*).

REVISION OF THE GENERA AND SPECIES OF CHAMÆLEONIDÆ,  
WITH THE DESCRIPTION OF SOME NEW SPECIES. BY DR.  
J. E. GRAY, F.R.S., F.L.S., ETC.

The Chameleons form one of the most natural families of Lizards, as well as one of the most clearly defined. The distinction of the species from one another, as is almost always the case in a natural group, is difficult, and requires careful study and consideration. The species in general are well marked when the characters are eliminated ; but there are a few species, as *Chamæleon vulgaris* and *C. senegalensis*, which have a broad geographical distribution, that offer several variations such as, if the differences did not appear gradually

to pass into each other, might induce one to believe that they were specific; but they can hardly be even considered as local varieties, for the same variation seems to occur in specimens from different localities often situated far apart.

There is considerable difference in the sexes, especially of the horned species which, I believe, was first established in my 'Monograph;' but this difference does not appear to be common to all the species of the Horned Chameleons; for while the females of *C. Owenii*, *C. bifidus*, and *C. Parsonii* are hornless, the expansions on the sides of the nose of *C. pardalis*, which are analogous to the horn in *C. bifidus*, are as much expanded in the adult female as in the males of that species.

The female specimens are much more common in museums than males; they are perhaps more easily caught when they come to the ground to deposit their eggs: and this appears more probable from the fact that females containing eggs are often to be found among those collected. In some cases, even where there is a series of specimens, they are all females; at least I have not, from the external appearance, been able to discover a male of *C. senegalensis* or *C. dilepis*.

Dr. Hallowell (Journ. Acad. Nat. Sc. Philad. vii. 99) thought at one time that the occipital lobes were peculiar to the females; I also was once inclined to believe this might be the case, before I had seen his remark, from observing that all our specimens of *C. dilepis* appear to be females; but I had the same difficulty in finding any males of *C. senegalensis* or other allied species; and M. A. Dumeril specially observes that "the cutaneous prolongation is not a character only of the female *C. dilepis*" (Arch. du Mus. x. 174).

There is considerable variation in the distinctness and height of the occipital crest in the specimens of *C. vulgaris* and in some other species. This often arises from the animals having been kept in confinement without (or with only a very limited supply of) food, until the muscles have shrunk. This should make one careful in using the height of the crest as a character, more especially as many of the specimens in museums have been kept alive in confinement either in the country which they naturally inhabit or in some other, as collectors like to have them alive as pets.

Yet the well-fed and fresh-caught specimens seem to vary considerably in this particular; for example, specimens of *C. vulgaris* from India, as a rule, seem to have the occipital crest higher and more arched than African specimens; but still there are in the Museum collection some African specimens which have quite as high crests.

Little attention seems to have been paid to the coloration of the species, probably because the animal greatly changes its colour during life; and specimens in spirits of some species, such as of *C. vulgaris*, offer many variations, from bright yellow to dark lead-grey. Yet in some species the distribution of the colours, at least in specimens in spirits, seems to form permanent specific marks, as, for example, the lines or white spots or white bands on the sides of several species.

The number of species has gradually increased. In my Mono-

graph, published in the 'Catalogue of Lizards in the British Museum,' printed in 1845, I described eighteen species; the present revision contains thirty, distributed into fourteen genera.

Since the above Monograph, Dr. Hallowell has described three or four species from West Africa, in the 'Journal' and 'Proceedings' of the Academy of Natural Sciences of Philadelphia; but unfortunately I have not been able to make any of the specimens in the Museum collection agree with his descriptions. M. A. Duméril, in the 'Archives du Muséum,' has described and figured two new species, and he has given figures of the heads of fifteen other species. I have referred to these figures, as they elucidate several species described in my Monograph which had not before been figured. Unfortunately the figures are not as accurate as they might be; and one, that of *C. cucullatus*, is either absolutely erroneous or is from a Chameleon that differs very considerably in the proportion of the head, and in having a dentated crest on the chin, from the species to which M. A. Duméril has referred it, which was originally described by me from specimens in the British Museum collection—the account in the 'Érpetologie Générale' having been copied from my description.

Dr. Andrew Smith, in the fifth number of the 'South-African Quarterly Journal,' published at the Cape of Good Hope in October 1831, describes two new species, viz. *C. namaquensis* and *C. tania-bronchus*; and in the Appendix to his 'Zoology of South Africa,' 1849, he describes a third, under the name of *C. gutturalis*. I have not been able to identify the two latter.

Dr. Fitzinger, in his 'Systema Reptilium,' published at Vienna in 1843, is the only author, as far as I know, who has attempted to divide the Chameleons into genera. He separates the family into two genera—*Chamæleon*, with homogeneous, and *Bradypodium* with heterogeneous scales. The rest of the lengthened characters which he gives for the genera are only transcripts of one another. He divides the first genus into three sections, viz. *Chamæleon*, *Triceras*, and *Furcifer*. The genera and the sections consist of species which have very little affinity, and appear to be very incongruously associated together: for example, *Furcifer* consists of *C. bifurcus*, *C. Parsonii*, and *C. Brookesii*; and *Bradypodium* of *C. pardalis*, *C. verrucosus*, *C. pumilus*, and *C. cucullatus*. The species are not characterized, except by the synonyms appended. It appears that he divides *C. vulgaris* into four, and *C. senegalensis* into two species.

The species have hitherto, except in the instance of Fitzinger above cited, all been referred to a single genus, in which they have been generally arranged in an artificial manner, merely to facilitate the finding of their names.

The species throw themselves into groups agreeing in natural characters: these groups are quite as distinct as the groups in the other families, which are regarded as genera; I have therefore so regarded them. If a comparison of genera of different families is to be established, and their affinities to each other studied, the genera in the different families should be formed on the same plan.

The Chameleons are essentially confined to Africa and the islands near to that continent. Thus, as far as we at present know, the following species, *Chamæleon calypttratus*, *C. verrucosus*, *C. balteatus*, *Apola lateralis*, *Calumma cucullata*, *Crassonota nasuta*, *Sauroceras rhinoceratum*, *Dicranosaura bifurca*, and *D. Parsonii*, are confined to Madagascar; *Cyneosaura pardalis* to the Isle of Bourbon; *Lophosaura tigris* to the Seychelles; *C. Burchelli*, *Pterosaura cristata*, and *Triceras Owenii* to Fernando Po and perhaps Old Calabar; *C. gracilis* to West Africa—Liberia; *C. Petersii* to Mozambique; *Ensirostris Melleri* to Eastern Africa; *C. auratus* to Arabia; *C. granulatus*, *Brookesia superciliaris*, and *C. senegalensis* to W. Africa; *C. lævigatus* to Central Africa; *C. affinis* to Abyssinia; *Phumanola namaquensis* to South-east Africa; *Lophosaura pumila* and *L. ventralis* to South Africa. *C. dilepis* is common to the west and south-east coast of Africa; while *C. vulgaris* is distributed over North and South Africa, Asia Minor, India, and Singapore.

Fam. CHAMÆLEONIDÆ, Gray, Cat. Lizards Brit. Mus. .264 (1845).

CHAMÆLEON, Gronovius, Fitz.

*Synopsis of the Genera.*

A. *The nose and orbit simple, not horned.*

1. CHAMÆLEON. Back and belly with a series of compressed elongated scales.
2. APOLA. Back-edge broad, with two series of minute scales; belly dentated.
3. PTEROSAURUS. Back and tail with a high fin, supported by bony rays, smooth-edged; belly dentated.
4. MICROSAURA. Back and chin crested; occiput keeled, compressed; sides smooth, divided into two square disks.
5. PHUMANOLA. Back rounded, with a series of large bony tubercles covered with scales.
6. LOPHOSAURA. Chin with a series of elongated processes covered with scales.
7. CALUMMA. Orbit with large lobes, covered with scales behind; back dentated; belly and chin rounded, not dentated.

B. *Nose simple; orbit angularly produced in front.*

8. BROOKESIA.

C. *Nose and orbit with cylindrical horns, covered with a sheath.*

9. TRICERAS. Horns, one on the nose and one on the front of each orbit.

D. *Nose with one or two bony prominences covered with scales.*

10. CRASSONOTA. Nose compressed in front, with a flexible compressed lobe covered with scales; back with a distant series of slender elongated scales.

11. ENSIROSTRIS. Nose-horn single, bony, central, sharp-edged above ; occiput lobed behind ; back with a lobed, erect fin.
12. SAUROCERAS. Nose-horn single, bony, central, sharp-edged below, grooved above ; occiput simple behind ; back dentate.
13. DICRANOSAURA. Nose-horns two, produced, compressed ; back compressed ; belly and chin rounded.
14. CYNEOSAURA. Nose dilated, and toothed on each side in front ; back, chin, and belly dentate.

A. *Nose of male and female simple, not dilated ; orbit simple.*

#### 1. CHAMÆLEON.

Nose (of both sexes) simple, without any appendages or horns ; the chin simple ; orbit round, simple. The back, chin, and belly with a series of compressed elongated scales, forming a dentated crest.

a. *Occiput produced and acute behind, with raised central keel, with small scales behind the temples.* Calyptrousura.

1. CHAMÆLEON CALYPTRATUS, A. Dum. Arch. du Mus. vi. t. 21. f. 1.

The occipital ridge very high and large ; scales equal, small.

*Hab.* Madagascar (*Mus. Paris.*).

I only know this species from the description and figure of M. A. Duméril.

2. CHAMÆLEON VERRUCOSUS, Gray, Cat. B. M. 267 ; Dum. & Bib. Erp. Gén. iii. t. 27. f. 1. B.M.

*Bradypodium verrucosum*, Fitz. Syst. Rept. 43.

Scales unequal ; sides with several series of larger tubercles.

*Hab.* Madagascar. Males and females similar.

The series of scales on the belly and chin becomes less distinct in the older specimens.

b. *Occiput produced and acute behind, with a raised central keel and with a flat space edged with a series of large scales, from the apex to the sides of the temple.* Chamæleon.

3. CHAMÆLEON VULGARIS, Gray, Cat. B.M. 265 ; A. Dum. Arch. du Mus. vi. t. 22. f. 1 (head). B.M.

The occipital crest moderate, upper edge arched ; the side margin with a series of large scales, and more or less elevated ; scales equal.

In spirits, brown, with two more or less interrupted pale longitudinal bands on each side ; eyelids dark-rayed.

*Hab.* Africa and Asia ; and naturalized in Europe.

Var. *marmoratus*. Forehead very concave ; eyebrows and occipital crest very high. In spirits, pale brown, marbled with irregular black cross marks.

*Hab.* Dukhun (*Col. Sykes*).

In the British Museum there are specimens from S. Europe (*P. B. Well*) ; N. Africa, Egypt (*J. Burton*), Algiers and Tunis (*Fraser*),

Tripoli (*Ritchie*); S. Africa (*Col. Denham*); Asia Minor, Xanthus (*Fellows*); India, Calcutta (*Hardwicke, Livesay*), Dukhun (*Sykes*), Anamallay Mountains (*Beddome*), Singapore (*Cantor*); Japan (*Zool. Soc.*).

After a most careful comparison, I have not been able to discover any distinction between the African and Asiatic specimens. The Asiatic ones have the bands on the sides less marked; indeed they are generally absent, but in some specimens they are clearly indicated. I was much tempted to separate them on this ground; but this character, and the height of the occipital crest, would not hold out after a rigorous examination and comparison.

|| Fitzinger, in his 'Systema Reptilium,' gives the names of *C. coromandelicus* to the Chameleon of India, *C. africanus* to that from Africa, *C. rimulosus* to that from Egypt, and *C. hispanicus* to that from Spain; but these species, or presumed species, are not characterized.

#### 4. CHAMÆLEON AURATUS.

B.M.

The scales large; dorsal, chin, and ventral crest well developed. The occiput extended and rather pointed behind, covered above with rather convex scales. The dorsal ridge is strongly toothed.

In spirits, pale yellow, with many bright yellow spots, and without any white spots or bands.

*Hab.* Arabia (*H. Christy*).

There is a second specimen, allied to this Chameleon, in the Museum collection, which differs in the occipital keel being very much lower and flatter; but in other respects they are very much alike. The one with the flatter occipital keel was received from the Zoological Gardens, and was said to have been sent from Mexico.

c. *Occiput produced and acute behind, with a distinct central keel, with large hood-like occipital flaps, from apex to side of the temple, covered with flat scales.*

#### 5. CHAMÆLEON PETERSII, n. s.

B.M.

*C. dilepis*, Peters, MS.

Back compressed, with a series of large compressed scales; fore-



*Chamæleon Petersii.*

head narrow, covered with flat scales with a strong sharp edge on

each; occiput contracted and short-edged behind, with a well-raised central keel arched on its upper edge; occipital flaps broad, rounded, covered with large, flat, hexagonal scales; scales small, equal; chin and belly dentated, covered with flat scales.

In spirits, dark green, with a white spot behind the temple, and also a white streak from the axilla; forehead, temple, and side of occiput white.

*Hab.* E. Africa, Mozambique (*MacLeod, Dr. Peters*).

Var. *Kirkii*. The occipital lobes smaller.

B.M.

*C. dilepis*, Gray, P. Z. S. 1864.

*Hab.* Eastern Africa (*Dr. Kirk*). A female.

- d. *Occiput produced and acute behind, with a low keel, and two large broad flaps behind, covered with large, irregular, convex shields; scales of body and limbs with larger tubercles.*

6. CHAMÆLEON MONACHUS.

B.M.

Brown (in spirits), dorsal keel and body white-speckled, upper and lower lip at the gape, and ventral crest white; the occipital flaps large, with irregular, unequal, flat shields; the body and limbs with low, convex, larger tubercles.

*C. cucullatus*, A. Duméril, Arch. du Mus. vi. t. 6. f. 9 (not Gray).

*C. Parsonii*, Cat. Mus. Zool. Soc. MS.

*Hab.* Madagascar.

The head of this species is not well figured as that of *C. cucullatus* by M. A. Duméril. It is at once known from that species by the form of the occiput, and the crest on the chin and belly. It is a fine large species. We received it from the Zoological Society in 1855.

- e. *Occiput broad and rounded behind, flat above, with a scarcely raised central line behind.*

† *The sides of the occiput with small granular scales.* Erizia.

\* *Chin and belly with a distinct denticulate line of white scales.*

7. CHAMÆLEON SENEGALENSIS, Gray, Cat. B. M. 286; A. Dum. Arch. du Mus. vi. t. 22. f. 7 (fig. bad); Fitz. Syst. Rept. 41. B.M.

? *C. leptopus*, Fitz. Syst. Rept. 41.

Scales large; head broad and rounded behind; occiput covered above with convex scales.

In spirits, brown or purplish.

*Hab.* West Africa, Senegal (*Earl of Derby*).

8. CHAMÆLEON LÆVIGATUS, Gray, P. Z. S. 1863; Ann. & Mag. N. H. 1863, xii. 248. B.M.

Scales minute; the dorsal crest very indistinct, only visible on the nape; head rhombic behind; occiput covered above with flat thin scales.

*Hab.* Central Africa, Chartoom (*Petherick*).

Probably only a young specimen of the preceding.



9. CHAMÆLEON GRACILIS, Hallowell, Journ. Acad. N. S. Philad. viii. 324, t. 18 (♀ and eggs); Proc. Ac. N. S. Philad. 1854, 99; A. Dum. Arch. du Mus. x. 173 (a note only). B.M.

*C. senegalensis*, var., Gray, Cat.

Scales large; head broad and acute behind; occiput covered above with convex scales.

In spirits, olive, with a white spot on the shoulder, or interrupted on the upper part of the back, and with a band of white spots from the axilla.

*Hab.* W. Africa, Senegal (*A. Gerrard*), Angola, Congo, Cuanga, and Pungo Adongo (*Dr. Welwitsch*), ? Liberia (*Dr. Ford*).

Var. ? *leiocephalus*. B.M.

*C. dilepis*, Gray, Cat. Mus.

Scales and colour like the former; the scales on the crown and occiput above flat, smooth, hexagonal.

*Hab.* W. Africa, Fantee (*Capt. Marryat*), Ashantee (*Mus. Leyden*).

The figure of Dr. Hallowell is a moderately good representation of this species; but the name is not the best, as it is a stouter and stronger species than *C. senegalensis*.

\*\* *Chin without any white dentated ridge of scales; belly dentated.*

10. CHAMÆLEON AFFINIS, Rüppell; Gray, P. Z. S. 1863; Ann. & Mag. N. H. 1863, xii. 248.

*C. abyssinicus*, Wiegmann, Mus. Berolin.; Fitz. Syst. Rept. 43.

Lead-coloured (in spirits), with two long white spots on the temple behind the eyes, upper part of back with an interrupted broad white band; scales large, subequal.

*Hab.* Abyssinia, from Mus. Francofurt.

\*\*\* *Chin dentated; middle of belly not dentated.*

11. CHAMÆLEON BALTEATUS, A. Dum. Arch. du Mus. vi. 260, t. 21. f. 2; x. 174.

Back dentated; scales subequal, brown; edge of jaws, middle of the belly, and tail, a broad oblique streak from shoulder to groin, and a streak on each side of the belly yellowish; chin slightly dentated; "middle of the belly not dentated" (Arch. Mus. x. 174).

*Hab.* Madagascar (*Mus. Paris.*). A single specimen. I have not seen this species.

The following species appear to belong to this division:—

12. CHAMÆLEON GRANULOSUS, Hallowell, Proc. Acad. N. S. Philad. 1856, 147.

Grey; belly bluish; scales on the sides unequal, tubercular; four

or five rows of flat quadrangular scales between the dorsal denticulations and the lateral tubercles.

*Hab.* West Africa (*Mus. Philad.*). A single specimen.

13. CHAMÆLEON BURCHELLI, Hallowell, Proc. Acad. N. S. Philad. 1856, 147.

Greenish, with a lateral yellow stripe; scales of body unequal, tubercular, subrhomboid, interspersed with very small granules; of sides of head, rather large, flattened.

*Hab.* Fernando Po (*Mus. Philad.*). A single specimen.

†† *Sides of the occiput with a fleshy lobe, covered with scales from the apex of the occiput to the middle of the temple. Dilepis.*

14. CHAMÆLEON DILEPIS, Leach; Gray, Cat. B. M. 266; A. Smith, Zool. S. Africa, App. 3; A. Dum. Arch. du Mus. vi. t. 22. f. 8 (not good). B.M.

*C. bilobus*, Kuhl; Fitz. Syst. Rept. 41.

Dorsal crest of a single series of short conical scales; scales of body conical, convex; of crown and forehead flat, larger.

In spirits, bluish brown, a short white streak at angle of mouth, and a white band from the axilla along the sides of the belly, and another over the shoulder.

*Hab.* West Africa (*Richardson*), Gaboon (*Bowdich*), the type specimen described by Dr. Leach; S. Africa, Latakoo (*A. Smith*), Port Natal (*Rev. H. Calloway, Ayres*).

## 2. APOLA.

Nose of both sexes simple; orbit rounded. Chin and belly dented. Back compressed; upper edge flat, with a series of minute scales on each side. Occiput keeled. Scales granular, equal.

### 1. APOLA LATERALIS.

B.M.

*Chameleo lateralis*, Gray, Cat. B. M. 264; A. Dum. Arch. du Mus. vi. t. 22. f. 6 (head).



*Apola lateralis.*

Pale brown, with a narrow, continued pale streak on the middle of the sides; ventral line white.

*Hab.* Madagascar.

## 3. PTEROSAURUS.

Nose and chin simple. Back and tail with a high crest, supported by long bony rays. Belly slightly dentated. Chin and back smooth-edged. Orbit rounded. Occiput much produced, sloping, acute behind, flat above, or rather concave, without any central ridge; hinder sides covered with very small scales. Scales small, with scattered larger ones.

## 1. PTEROSAURUS CRISTATUS.

B.M.

*Chameleo cristatus*, Gray, Cat. B. M. 264.

Sides with a series of larger circular scales.

In spirits—red-brown, with numerous large, equal, roundish, white spots.

*Hab.* Fernando Po; Old Calabar (*Murray*).

One of the Museum specimens has two dark spots in front of the upper part of the nose over the nostrils. Is this a sexual character?

## 4. MICROSAURA.

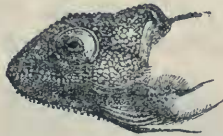
The occiput much narrowed and compressed behind, flat above, with a slightly raised central keel; the side of the occiput with a smooth space, separated from the smooth temple by a central nodulous ridge (as in *Lophosaura*). Back and chin with a crest of small compressed scales. Belly not dentated. Scales of body unequal; of legs equal, flat.

## 1. MICROSAURA MELANOCEPHALA.

B.M.

White (in spirits), head and shoulders black, fore legs blackish; scales of the body granular, small, convex; with a longitudinal series of large, circular, slightly raised tubercles on the middle of each side, and with a similar series of small tubercles on the sides of the middle of the back; scales of the legs larger than those of the body, flat, equal.

*Hab.* S. Africa, Port Natal, 1862.



Head of *Microsaura melanocephala*.

## 5. PHUMANOLA.

Nose and chin simple. Back with a series of large bony tubercles covered with scales. Orbit very prominent, rounded. Occiput triangular, with a central nodulous ridge; small convex scales. Scales uniform, convex. Forehead, crown, and back of chin and belly not toothed. Tail cylindrical, rounded above.

## 1. PHUMANOLA NAMAQUENSIS.

B.M.

*Chamæleo namaquensis*, A. Smith, Zool. Journ. 1831; A. Dum. Arch. du Mus. vi. t. 22. f. 3\*.

*C. tuberculiferus*, Gray, Cat. B. M. 267.

In spirits, dark brown, paler below; sides black-spotted, with a series of irregular-shaped, black-edged, pale spots along the middle; belly with a dark-edged, central, broad longitudinal band.

*Hab.* S. Africa—Little Namaqua Land, near the mouth of the Gariiep or Orange River (*A. Smith*).

## 6. LOPHOSAURA.

Nose simple, without appendages. Chin with a series of skinny lobules beneath. Occiput produced, acute behind, keeled above. Back and throat often dentated. Scales unequal. Belly not toothed.

a. *Back compressed, with a continuous series of large compressed scales; scales unequal.* Lophosaura.

## 1. LOPHOSAURA PUMILA.

B.M.

*Chameleo pumilus*, Gray, Cat. B. M. 269; A. Dum. Arch. du Mus. vi. t. 22. f. 5.

*Bradypodium pumilum*, Fitz. Syst. Rept. 43.

Scales of body and limbs moderate, unequal, with one or two series of large scales on the sides; sides of occiput and temples covered with flat scales.

In spirits, bluish, with a white streak from the orbit to the shoulder, and from the temples along the sides of the back.

*Hab.* South Africa; Cape of Good Hope.

Var. *Fordii*. Scales larger, more acute; tubercles on the side of the back large, elongate, keeled; throat-fringe elongate, covered with acute scales; scales of belly small, equal.

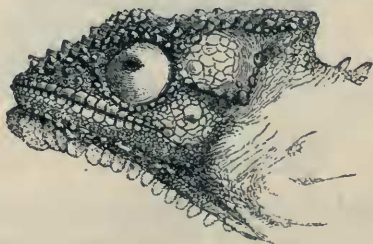
*Hab.* S. Africa, on branches of underwood; from Haslar Hospital. *Trup sutchees* of the Cape Colonist; that is, "Tread lightly."

## 2. LOPHOSAURA VENTRALIS.

B.M.

*Chameleo ventralis*, Gray, Cat. B. M. 268.

*C. pusillus*, var.?, A. Smith, S. A. Zool. App. 2; A. Dum. *l. c.* 261.



*Lophosaura ventralis*.

Scales small, with three or four series of large, flat, oval scales, with

convex centres, on the sides, and several series on the sides of the belly, and two series on the sides of the tail.

*Hab.* S. Africa. Male and female.

b. *The back with a series of distant conical compressed scales; tail and belly not crested.* Archaius.

### 3. LOPHOSAURA TIGRIS.

B.M.

*Chameleo Tigris*, Gray, Cat. B. M. 268; A. Dum. Arch. du Mus. vi. t. 22. f. 3.

Scales of temple, occiput, back, and limbs uniform, small, granular. In spirits, yellow, brown-spotted; spots sometimes confluent, forming short longitudinal lines.

*Hab.* Seychelles Islands.

*Chamæleo gutturalis*, A. Smith, Append. Z. S. A. 3.

“Back and tail surmounted with three rows of three-sided tubercles; body and tail covered with small scales and subconic tubercles; sides with two longitudinal rows of large subovate flat plates; chin and throat fringed longitudinally with long, small, thin, narrow and pointed lobes of skin. Length  $6\frac{1}{2}$  inches.

“*Hab.* S. Africa.

“Distinguished from *C. pumilus* by the length of the lobes of the guttural fringes, and their being smooth and destitute of granular scales.”

We have no specimen of this genus which has the scaleless lobes of the chin here described.

*Chamæleo tæniabronchus*, A. Smith, S. Afr. Quart. Journ. 1831, p. 17.

“Yellowish green, with two longitudinal buff stripes along each side, and four or six smooth, oblong, jet-black stripes along the sides of the throat, best seen when the animal inflates itself, or when the skin is extended laterally; occipital casque narrow, produced, armed above with three dentated ridges, one on each side, and another along the centre; back with a ridge of short conical tubercles, inclined backwards; chin and throat with a short, dentated longitudinal fringe; scales of the body small and granular; temples divided longitudinally by a dentated ridge.

“*Hab.* Algoa Bay. One specimen,  $4\frac{1}{4}$  inches long.”

### 7. CALUMMA.

Nose and chin simple; orbits rounded. Occiput lozenge-shaped, produced behind, and shelving on the sides, with very large flaps on the hinder side edges. Back compressed, with a series of compressed conical scales. Chin and belly rounded, not dentated, without any line of conical scales (female).

#### 1. CALUMMA CUCULLATA.

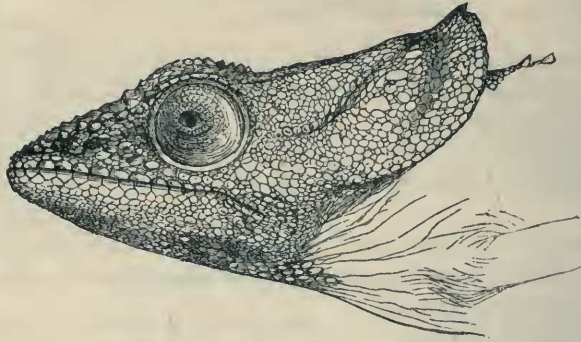
B.M.

*Chameleo cucullatus*, Gray, Cat. B. M. 267.

*Bradypodium cucullatum*, Fitz. Syst. Rept. 43.

*Hab.* Madagascar. A single female specimen.

A. Duméril (Arch. du Mus. vi. t. 22. f. 9) figured a "*C. capuchon*" with a well-marked dentated line of scales on the chin. It is a



*Calumma cucullata.*

very distinct species. Described above (at page 346) as *C. monachus*.

B. *Nose simple ; orbit angularly produced in front.*

#### 8. BROOKESIA.

Nose of both sexes simple. The eyebrows produced above into triangular horns. Scales very minute. Chin, back, and belly not toothed; the sides of the back with a longitudinal series, and the chin with an arched series, of subulate erect scales. Tail short, compressed at the base.

##### 1. BROOKESIA SUPERCILIARIS.

B.M.

*Chamæleo superciliaris*, Kuhl.

*C. Brookesianus*, Gray, Cat. B. M. 270 ; cop., A. Dum. Arch. du Mus. vi. t. 22. f. 14.

*Chamæleon Brookesii*, Fitz. Syst. Rept.

*Hab.* West Africa.

C. *Nose and orbit of male with cylindrical horns.*

#### 9. TRICERAS.

*Chamæleon*, § *Triceras*, Fitz. Syst. Rept. 43.

The nose of the male with three horn-like processes, covered with a conical, continuous, horny sheath—one from the front of each orbit, and the other from the middle of the nose. Chin simple. Back, chin, and belly not crested. Occiput flat, with a slightly raised central line. Scales uniform, granular.

##### 1. TRICERAS OWENII.

B.M.

*Chameleo Owenii*, Gray, Cat. 269 ; Zool. Misc. t. 4 ; cop., A. Dum. Arch. du Mus. vi. t. 22. f. 10 (head).

♀. *C. Bibronii*, Martin.

*Chamæleon Owenii*, Fitz. Syst. Rept. 102.

Dark brown in spirits, with several series of oval longitudinal spots; those on side of back forming a pale band; eyelid dark-rayed.

*Hab.* Fernando Po (*Capt. Edw. Owen*).

D. *Nose with one or two bony processes covered with scales ; orbits simple, unarmed.*

#### 10. CRASSONOTA.

The nose (of male?) compressed in front, with a flexible compressed lobe covered with scales. Chin simple ; orbit rounded. Back rounded, with a series of small, distant, slender, flexible, single scales. Chin and belly rounded, not dentated. Tail rounded above. Occiput flat above, produced behind, shelving on the sides, and covered with small scales. Scales equal, thin.

##### 1. CRASSONOTA NASUTA.

B.M.

*Chameleo nasutus*, Gray, Cat. B. M. 268 ; A. Smith, Zool. S. Africa, App. 3 ; A. Dum. Arch. du Mus. vi. t. 22. f. 4 (head bad).

*Chamæleon nasutus*, Fitz. Syst. Rept. 42.

Pale brown ; belly paler ; head and limbs white-spotted.

*Hab.* Madagascar.

Var. "With three isolated spines, each about a line in length, on the vertebral line, about midway between the head and the base of the tail.

"*Hab.* Eastward of Port Natal.

"Length : head and body 1 inch 10 lines ; tail 1 inch 9 lines. Appears to be an adult." (*A. Smith*, l. c.)

#### 11. ENSIROSTRIS.

Nose (of male, at least) with a single central compressed bony horn, sharp-edged above. Orbit rounded. Chin and belly simple, not dentated. Back and tail with a high crest of roundish lobes covered with scales. Occiput keeled, acutely produced behind, shelving on the sides, and with a broad hood-like lobe covered with scales on each side behind ; scales unequal, granular, with larger rounded scattered tubercles.

##### 1. ENSIROSTRIS MELLERI.

B.M.

Stuffed, grey-brown, with whitish cross bands on the body.

*Hab.* E. Africa, on the mountains in the interior (*Dr. Meller*). A single specimen, probably a male.

The head and hood are somewhat like those of *Calumma cucullata* ; but the back-crest and the scales are very different, too different to be sexes of the same species, as I was once inclined to think they might be.

#### 12. SAUROCERAS.

Nose (of male, at least) with a single central elongated bony horn, with a deep angular channel on the upper, and a sharp edge on the lower side. Orbit rounded. Back rather compressed, with a series of compressed conical scales. Tail compressed above. Occiput keeled, acutely produced behind, shelving on the sides, with a raised edge below, covered with small scales behind. Scales unequal, granular, with large interspersed tubercles.

*Ann. & Mag. N. Hist. Ser. 3. Vol. xv.*

## 1. SAUROCERAS RHINOCERATUM.

B.M.

*Chameleo rhinoceratus*, Gray, Cat. B. M. 267.*Hab.* Madagascar. A single small specimen.

## 13. DICRANOSAURA.

Nose of male produced on the sides into two compressed bony horns covered with scales; of female, simple, hornless. Orbit rounded. Occiput flat above, produced, broad, and rounded behind, with small scales on its hinder sides. Back compressed, keeled, sometimes dentated in front. Chin and belly not toothed. Scales equal.

## 1. DICRANOSAURA BIFURCA.

B.M.

*Chameleo bifurcus*, Gray, Cat. B. M. 268; A. Dum. Arch. du Mus. vi. t. 22. f. 3.*Chamæleon Brongniartii*, Fitz. Syst. Rept. 42.

Nose-horns elongate; back dentated in front. Grey (in spirits), with a broad white streak down each side of the belly; scales equal, square.

*Hab.* Madagascar. Male and female.Var. *crassicornis*.

B.M.

One of the males, with the horns only partly developed, has them very thick and trigonal at the base, so as nearly to reach across the nose. In another young male, about the same size, they are compressed and far apart at the base, as in the type specimens.

## 2. DICRANOSAURA PARSONII.

B.M.

*Chameleo Parsonii*, Gray, Cat. B. M. 264; A. Dum. Arch. du Mus. vi. t. 22. f. 12.*Chamæleon Parsonii*, Fitz. Syst. Rept. 42.

The nose-horns erect, lobed; back rounded, not dentated in front.

*Hab.* Madagascar.

There is only a female of this species in the Museum.

## 14. CYNEOSAURA.

Nose of both sexes flat in front, with the sides dilated, serrated, and covered with large scales. The occiput flat, with a sharp-edged, narrow, central keel above, produced, broad, and rounded behind. Orbit simple. Back compressed, with a series of large compressed scales. Chin and belly dentated. Scales unequal.

## 1. CYNEOSAURA PARDALIS.

B.M.

*Chameleo pardalis*, Gray, Cat. B. M. 266; A. Dum. Arch. du Mus. vi. t. 22. f. 11 (head).*Bradypodium pardalis*, Fitz. Syst. Rept. 43.

Brown in spirits, with a broad white streak down the middle of the sides.

*Hab.* Bourbon; Madagascar.